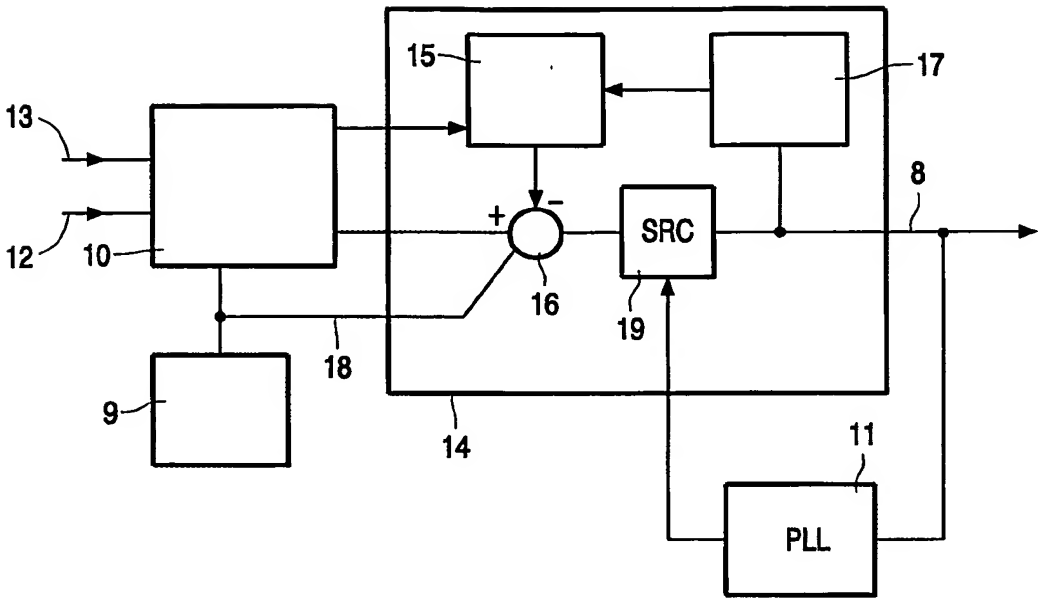
15
17
13
8
+
-
SRC
12
10
16
19
18
9
14
11
PLL

FIG. 1

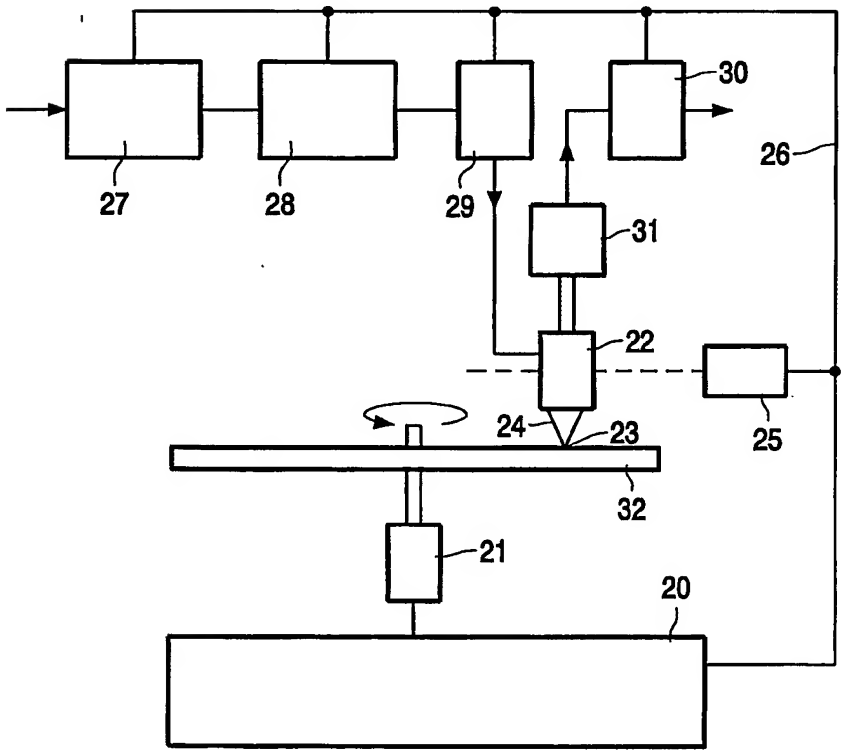
30
26
27
28
29
31
22
25
24
23
32
21
20

FIG. 2

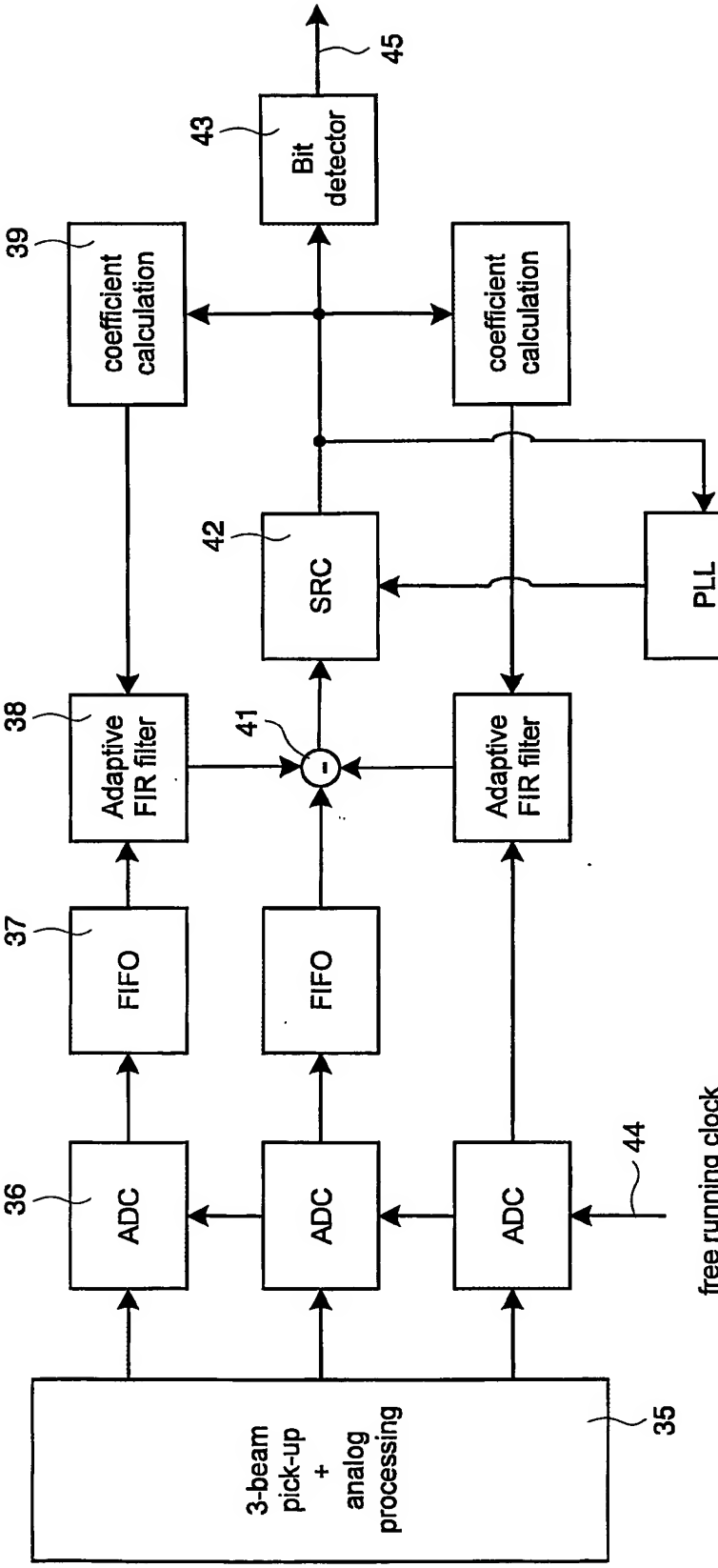
45
43
Bit detector
39
coefficient calculation
coefficient calculation
42
SRC
PLL
40
38
Adaptive FIR filter
41
-
Adaptive FIR filter
37
FIFO
FIFO
36
ADC
ADC
ADC
44
free running clock
3-beam pick-up + analog processing
35

FIG.3

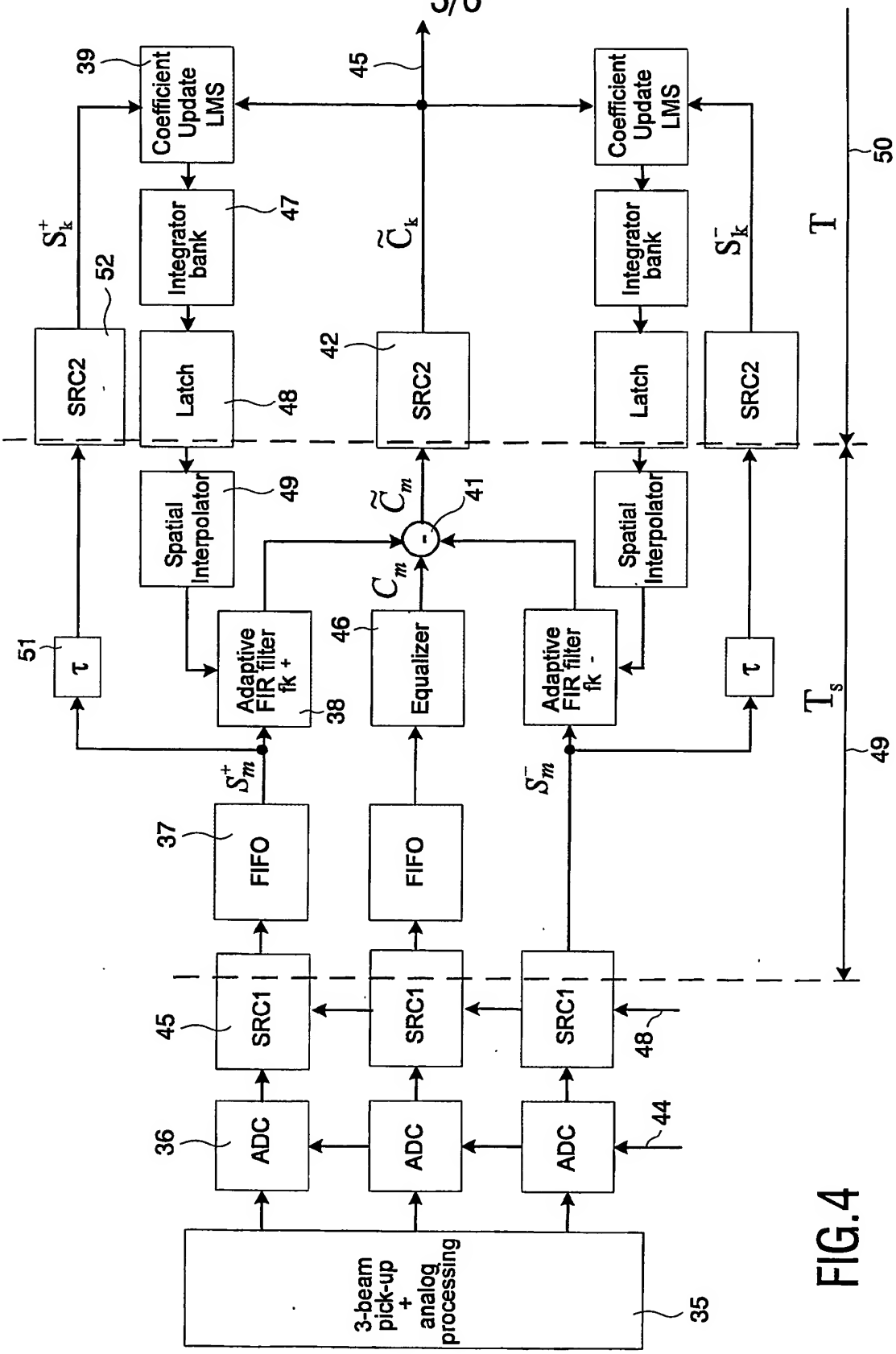
3-beam pick-up + analog processing
35
ADC
36
44
SRC1
45
48
FIFO
37
Adaptive FIR filter fk +
38
Adaptive FIR filter fk -
Equalizer
46
Spatial Interpolator
49
Latch
48
Integrator bank
47
Coefficient Update LMS
39
45
SRC2
52
42
τ
51
41
T
50
T_s
49
S_m^+
S_m^-
S_k^+
S_k^-
$\tilde{C}_k$
$\tilde{C}_m$
C_m

FIG.4

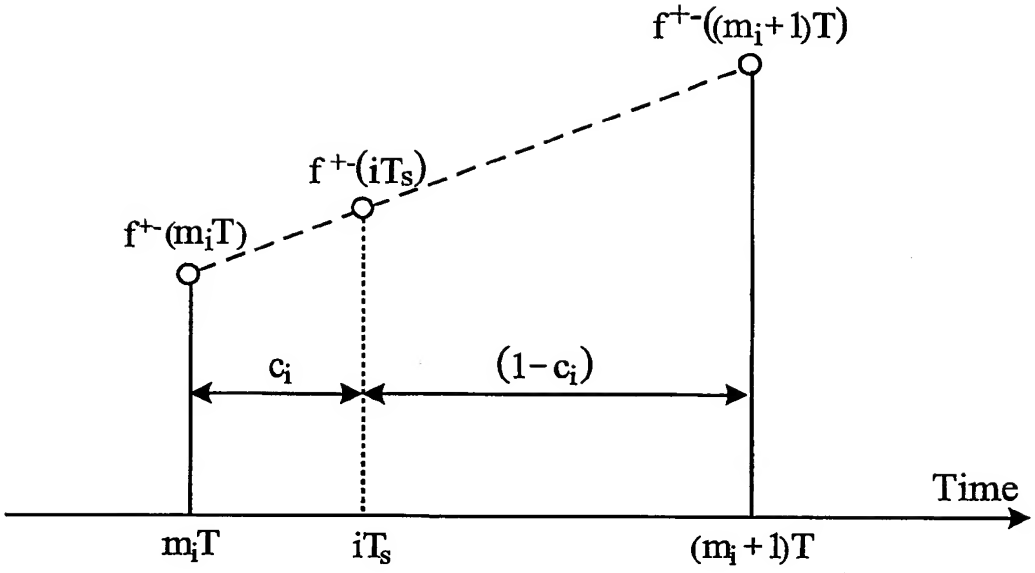

FIG.5

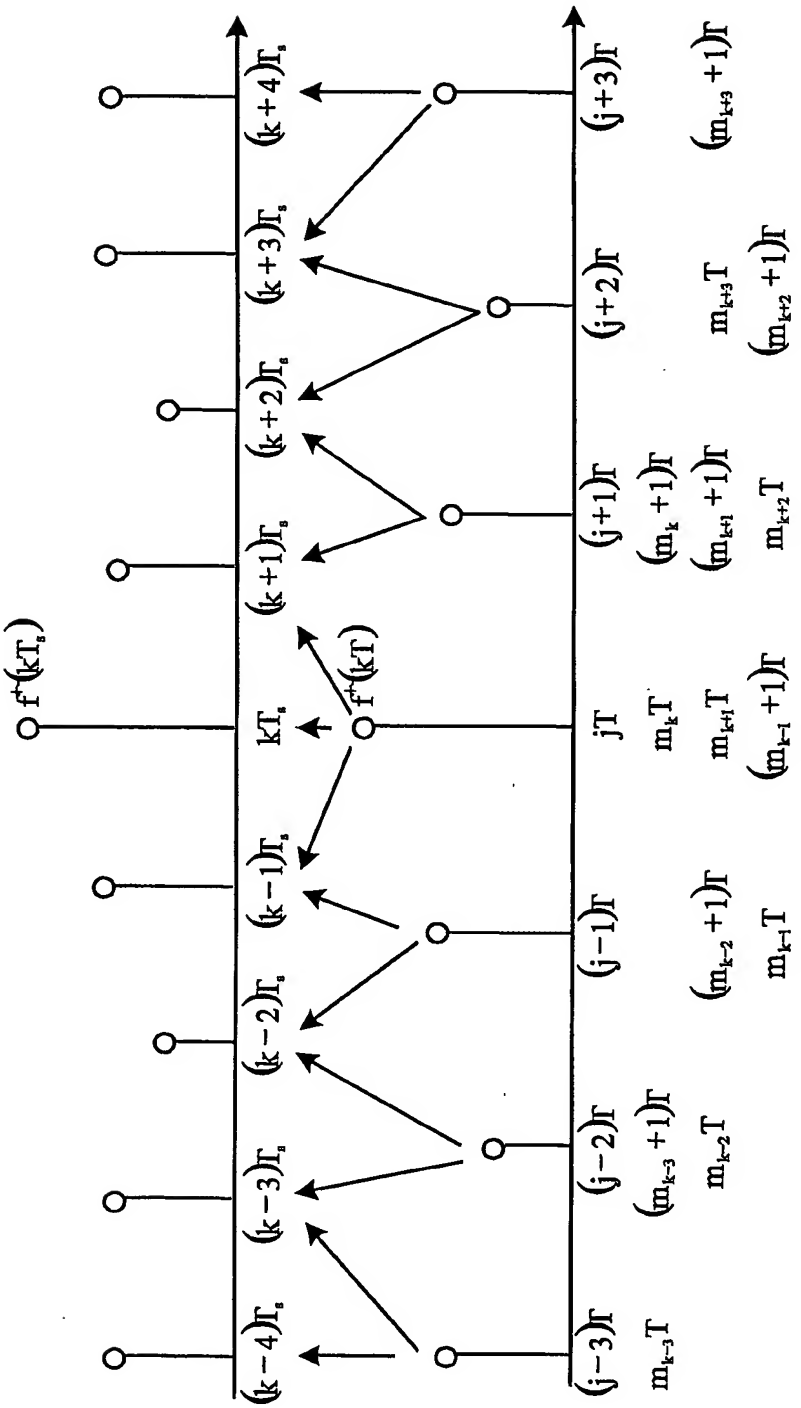
$f^*(kT_s)$
$f^*(kT)$
$(k-4)T_s$
$(k-3)T_s$
$(k-2)T_s$
$(k-1)T_s$
kT_s
$(k+1)T_s$
$(k+2)T_s$
$(k+3)T_s$
$(k+4)T_s$
$(j-3)T$
$(j-2)T$
$(j-1)T$
jT
$(j+1)T$
$(j+2)T$
$(j+3)T$
$m_{k-3}T$
$(m_{k-3}+1)T$
$m_{k-2}T$
$(m_{k-2}+1)T$
$m_{k-1}T$
$(m_{k-1}+1)T$
m_kT
$(m_k+1)T$
$m_{k+1}T$
$(m_{k+1}+1)T$
$m_{k+2}T$
$(m_{k+2}+1)T$
$m_{k+3}T$
$(m_{k+3}+1)T$

FIG.6

$$f^{+-}((k-4)T_s)=(1-c_{k-4})\cdot f^{+-}(m_{k-4}T)+c_{k-4}\cdot f^{+-}((m_{k-4}+1)T)=f^{+-}((j-3)T)$$

$$f^{+-}((k-3)T_s)=(1-c_{k-3})\cdot f^{+-}(m_{k-3}T)+c_{k-3}\cdot f^{+-}((m_{k-3}+1)T)=\frac{f^{+-}((j-3)T)}{4}+\frac{3\cdot f^{+-}((j-2)T)}{4}$$

$$f^{+-}((k-2)T_s)=(1-c_{k-2})\cdot f^{+-}(m_{k-2}T)+c_{k-2}\cdot f^{+-}((m_{k-2}+1)T)=\frac{f^{+-}((j-2)T)}{2}+\frac{f^{+-}((j-1)T)}{2}$$

$$f^{+-}((k-1)T_s)=(1-c_{k-1})\cdot f^{+-}(m_{k-1}T)+c_{k-1}\cdot f^{+-}((m_{k-1}+1)T)=\frac{f^{+-}(jT)}{4}+\frac{3\cdot f^{+-}((j-1)T)}{4}$$

$$f^{+-}(kT_s)=(1-c_k)\cdot f^{+-}(m_kT)+c_k\cdot f^{+-}((m_k+1)T)=f^{+-}(jT)$$

$$f^{+-}((k+1)T_s)=(1-c_{k+1})\cdot f^{+-}(m_{k+1}T)+c_{k+1}\cdot f^{+-}((m_{k+1}+1)T)=\frac{f^{+-}(jT)}{4}+\frac{3\cdot f^{+-}((j+1)T)}{4}$$

$$f^{+-}((k+2)T_s)=(1-c_{k+2})\cdot f^{+-}(m_{k+2}T)+c_{k+2}\cdot f^{+-}((m_{k+2}+1)T)=\frac{f^{+-}((j+2)T)}{2}+\frac{f^{+-}((j+1)T)}{2}$$

$$f^{+-}((k+3)T_s)=(1-c_{k+3})\cdot f^{+-}(m_{k+3}T)+c_{k+3}\cdot f^{+-}((m_{k+3}+1)T)=\frac{f^{+-}((j+3)T)}{4}+\frac{3\cdot f^{+-}((j+2)T)}{4}$$

$$f^{+-}((k+4)T_s)=(1-c_{k+4})\cdot f^{+-}(m_{k+4}T)+c_{k+4}\cdot f^{+-}((m_{k+4}+1)T)=f^{+-}((j+3)T)$$

FIG.7